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SOME COMPLICATIONS AND SEQUELÆ OF  
GYNÆCOLOGICAL OPERATIONS.\*

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It is my purpose in this paper to enumerate and briefly describe some of the more important and frequent complications and sequelæ of gynæcological operations, the complications referring to the condition of the patient and not to the difficulties of the operation.

Among the sequelæ, sepsis and peritonitis easily occupy the first place in importance. The deaths following intra-abdominal operations are in the great majority of cases due to these causes. From the clinical standpoint the symptoms of sepsis vary according to the character, intensity, and virulence of the infecting agent. There are cases in which death ensues in the course of one or two days, in which there are no inflammatory lesions, which are probably due to the absorption of toxins to such a degree as to overwhelm the vital nerve centers before serious inflammatory or infective lesions have time to develop. In other words, the cause of death is a profound toxæmia. At times these cases may present the clinical aspect of internal hæmorrhage. It is probable also that some of the cases that are presumed to die of shock after this period are due to acute sepsis. If the toxæmia is not so intense as to cause early death, the general symptoms will be: 1. Fever. Ordinarily this does not begin until twenty-four hours after the operation, because the microbes have not earlier multiplied sufficiently to furnish toxins for absorption. The fever may rise to  $104^{\circ}$  or higher, and is often preceded by a chill. The rise of temperature which follows immediately any operative procedure has been called aseptic fever (Beck, *Manual of Surgical Asepsis*)

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and is said to be due to the absorption of fibrin ferment. It rarely exceeds  $102.5^{\circ}$ , and declines constantly after the first day. 2. The *pulse* probably gives the earliest indication of sepsis. A pulse-rate of 120 or more a minute, whether associated with a high or low temperature, is a suspicious symptom, and should put one on the lookout for further signs of this condition. 3. The *skin* becomes relaxed, moist, and, in severe cases, bathed in profuse perspiration. 4. The *nerve tone* is much below par. There may be weakness, restlessness, anxiety, sleeplessness, headache, and delirium. These symptoms may be due either to the absorption of toxins or the invasion of septic organisms themselves, the former condition being called *sapræmia* and the later *septicæmia*. The differential diagnosis of these conditions depends upon the suddenness of the onset of the symptoms, the course of the disease, and the result of treatment. The more rapid and persistent rise in pulse and temperature indicates *sapræmia*, the slower and remittent type *septicæmia*. The removal of the nidus of infection is followed at once by the amelioration of the *sapræmic* symptoms. The *septicæmic* symptoms, on the other hand, improve much less promptly, if at all, under these circumstances.

If the symptoms above detailed be intensified, and the condition of multiple abscesses be added, we will have *pyæmia*. This malady is due to the entrance into the blood channels of pus-producing organisms, which are carried from the seat of infection to distant parts of the body by means of emboli. At the point of lodgment the organisms multiply and cause localized pus collections. The local symptoms will be determined by the organ involved and the seat of the abscess. The general symptoms, however, are practically the same, the salient ones being severe chills, high fever, and drenching sweats.

*Peritonitis* following operative procedures is due to infection, and the symptoms are oftentimes so involved with those of sepsis as to give rise to confusion as to which is the most important condition. Like sepsis, the symptoms do not usually show themselves until twenty-four hours after operation, and they may be so severe as to cause death within one or two days after the onset of the symptoms. The symptoms of acute general peritonitis are very characteristic, but in the post-operative form of the disease, at least, differ in some respects from those given in the medical text-books. The *pulse* becomes frequent, small, compressible; the more advanced the disease, the more compressible is the pulse. I have never seen the so-called characteristic hard pulse of peritonitis after operations. In one instance only



was there any approach to it. *Vomiting* is an early, prominent, and persistent feature of the disease. It is excited by the ingestion of any article whatever, and occurs also spontaneously. The contents of the stomach, of course, are first ejected, and later mucus and bile, and still later large quantities of a dirty brown fluid, are regurgitated rather than vomited. *Tympany*, I believe, is always present, and keeps pace with the area of the inflammation. In some cases, however, distention of the abdominal wall is not very great, but there is always even in these cases a marked *tensity of the abdominal muscles*. The symptoms of *pain* and *tenderness* vary greatly in different cases. They are by no means always present, although assigned a very important place in text-books. I have recently seen a case which terminated fatally where there was excessive distention but no pain, and little or no tenderness. Pain, when present, may be persistent or paroxysmal in character. In consequence of pain and tenderness the patient avoids all movement, and assumes a somewhat *characteristic attitude*. The shoulders and chest are inclined forward and the knees drawn up so as to relax the abdominal muscles. The breathing assumes the thoracic type and becomes more and more shallow as the chest cavity is encroached upon by the over-distended intestine. The *facial expression* in this affection is a more important symptom than in any acute disease with which I am familiar. At first one of anxiety, it rapidly changes, as the symptoms develop, into the so-called Hippocratic facies—*i. e.*, sunken eyes, pinched nose, cold ears, and a dry, harsh, lead-colored skin. *Temperature* in peritonitis is a very variable symptom. The beginning of the disease may be characterized by chilly sensations. I do not recall a distinct rigor. It rises to a moderate degree only. It may vibrate between  $100^{\circ}$  and  $102^{\circ}$  for a few days, and then rapidly shoot up to  $105^{\circ}$  to  $108^{\circ}$  just before death occurs, as in four cases reported by Cullen in *Johns Hopkins Hospital Reports*, vol. iv, Nos. 7 and 8. Or it may fall a few hours before death, as is seen in some Kensington Hospital charts which I have examined. Those cases which have a rapid, feeble pulse and low temperature seem to be the most hopelessly ill. The *tongue* becomes dry and fissured, and usually dark in the middle line. The *bowels* are constipated, and in their paralyzed condition do not even expel flatus. There are certain other symptoms dependent on these conditions, such as alteration in or obliteration of the splenic and hepatic dullness and elevation of the apex beat, which occur chiefly when the disease is well advanced and are thus of secondary importance. *Sleeplessness* and *anxiety* are marked nervous conditions. The mind is usu-

ally clear till the end is near. Tympany; free, persistent vomiting; a small, rapid pulse, and anxious expression, are the important, although not characteristic, symptoms in the early diagnosis of peritonitis. Obstruction of the bowel presents a similar group of symptoms. Acute spreading peritonitis is believed by the great majority of surgeons to terminate invariably fatally in spite of treatment. Recoveries have been reported. This probably depends on the nature of the infection.

The chief symptoms of *obstruction of the bowel* are abdominal pain, constipation, vomiting, and collapse. The consideration of this condition frequently obtrudes itself upon the mind of the abdominal surgeon, and is the source of no little anxiety. Are the symptoms due to strangulation of the gut, to volvulus, to sepsis, and peritonitis? Have adhesions formed a pouch or arch through which a loop of intestine has slipped? It is probable that most of these cases presenting obstructive symptoms a few days after infection are due to septic peritonitis. I have assisted at an operation upon one such case which was, however, puerperal in origin. A distinct mass was clearly outlined in the right iliac region, even after the patient was anæsthetized, and a cœliotomy disclosed absolutely nothing but a localized distention of the bowel to account for it. A probable instance of *volvulus* was narrated to me by a physician in whose hands it occurred. After a section the patient complained from the moment of return to consciousness of a pain in the right lumbar region. This grew constantly in intensity. Purgatives were begun early. In spite of a great number of doses and repeated purgative enemata, both low and high, no evacuation was secured. During the third day the dorsal posture became so unendurable that the patient was rolled over. Suddenly there occurred a distinct sound in the painful region, followed by instant relief and free expulsion of flatus and fæces.

Phlebitis occurs about two to three weeks after the operation, and is characterized by a slight elevation of temperature (at first about  $101^{\circ}$ , and later varying between  $99^{\circ}$  and  $100^{\circ}$ ), a sense of weight in the affected limb, pain, tenderness, œdema, and a dusky color along the line of the vessel, commencing in the pelvis and groin, and extending toward the periphery. I have not witnessed this affection in any other region than that of the internal or long saphenous vein, and always on the left side if unilateral, and beginning on the left side if bilateral. It usually runs an acute course of about two to three weeks, and subsides without further manifestations. Some œdema may be left after the acute symptoms have passed off.

A small percentage of cases of abdominal operations is followed



by a *localized infection* of the seat of operation. The course of the affection is somewhat as follows: After three or four days the patient will not do as well as she ought to do if no complications were going to present themselves. The patient will be somewhat restless, and complain of pain in the affected area. The usual purge following the operation will not entirely relieve the bloated bowel. Examination will reveal the distention of the bowel, some tenderness, externally and internally, a thickening or mass of doughy consistence. A slight elevation of pulse and temperature attends this condition. From this point the affection may pursue one or the other of two courses: either the temperature may vibrate between  $99^{\circ}$  and  $100^{\circ}$  for several days, and gradually subside to normal, while the mass grows less and less, and finally disappears after some weeks, or the general condition will not improve by treatment, and, after a short time—three to four days—the temperature will suddenly rise, announcing pus. An examination of the incision will show a dusky and swollen point, which, if not already opened, will, upon separation of the lips, show a purulent or bloody discharge. These cases, when they occur, are generally along the track of the drainage-tube. Through this track the infected ligature may come out at an early date, or the wound may heal up superficially and break out again repeatedly until the ligature comes out. I have known a ligature to come out as late as three years after it was introduced, and then the fistulous tract to heal up and give no further trouble. Occasionally the fistulous tract will communicate with the bowel. This may occur where the gut wall has been infiltrated with pus, or where the separation of adhesions has been at the expense of the bowel tissue, or where it is in any way diseased. Improperly managed drainage-tubes have been charged with this complication at times. The communication arises within three or four days after operation, and is characterized by the peculiar fæcal odor and discoloration of the drainage. It usually heals up in three to five weeks, but occasionally it will remain open for months.

The question of *thrombosis of the heart* and *embolism of the pulmonary artery* is one of clinical interest. The symptoms are those of obstructed circulation—namely, small, weak pulse, dyspnoea, and cyanosis. A slow blood current is an important predisposing cause of thrombosis, and is surely found where the heart beats very rapidly and only incompletely empties its cavities with each contraction. Physical signs are of importance but are not characteristic. There may be no cardiac impulse. The sounds are faintly heard. In two

reported cases (Gemmel, London *Lancet*, 1891, and Biggs, *N. Y. Med. Record*, 1892) there were no murmurs. In one, however, a peculiar flapping sound was audible at times. Flint states that a tricuspid systolic sound may be heard, which had not existed previously. It will thus be seen that there is no characteristic murmur pointing to this condition. Other symptoms referable to a feeble circulation are œdema of the extremities, dilatation of the pupils, headache, delirium, coma. When urgent dyspnœa not explicable by physical signs, attended with cold extremities and weakened pulse, occurs suddenly, we may suppose an embolus has lodged in a branch of the pulmonary artery. In one reported case there was little cough and a difficult expectoration of a tenacious mucus of dark currant-jelly color. When, therefore, a patient has had for a long time a rapid, feeble pulse, and dyspnœa and cyanosis develop suddenly, we may be justified in believing that thrombosis and embolism have occurred. These cases must almost invariably terminate in death. Flint, however, states that the history of some cases appears to show recovery, but there is always room for doubt in these cases respecting the diagnosis.

The lung complications which may follow an operation are those which may be due to the administration of an anæsthetic and those due to the operation itself, and are *œdema of the lungs*, *bronchitis*, *broncho-pneumonia*, *lobar pneumonia*, and *septic pneumonia*. One condition which strongly predisposes to ether complications is a present or recent bronchitis. In such a case the bronchi almost surely fill up with a frothy mucous secretion during the narcosis, which interferes with proper oxygenation of the blood and thus gives rise to cyanosis. As the patient gradually emerges from the narcosis, the respirations are accelerated, and there is cough attended by a frothy or mucoid expectoration. This may subside in a day or two and give no further trouble, or the breathing may become more labored, the cough remain troublesome and the expectoration more muco-purulent in character, the temperature rise to a moderate degree— $102^{\circ}$  to  $103^{\circ}$ —and the symptoms continue over a week. The physical signs in such a condition will show a broncho-pneumonia. In another instance the patient will progress in an entirely satisfactory manner for one or two or more days, and then be suddenly seized with a chill, and all the characteristic signs of a lobar pneumonia will follow. These symptoms are so urgent and the condition so apparent as to be practically never mistaken. It is questionable whether this form of pneumonia should be charged to the administration of ether or the operation. If it be due to a specific organism, it is possible that the germ may find a



favorable soil by reason of the reduced vitality of the subject. Septic pneumonia may follow a septic operation and be a part of the general septic process. The physical signs are not distinctive, and the disease is to be diagnosticated by the presence of dyspnœa, cough, expectoration, and often pleuritic pain in connection with general septic infection of other organs of the body.

The symptoms referable to the urinary organs following gynæcological operations are both frequent and important. They are non-septic or septic in origin.

1. *Non-septic Affections.*—It is customary to catheterize patients for a certain period after operations on the genital organs. One of the most constant symptoms complained of is more or less *pain* on passing water. This is no doubt due to two causes—(1) traumatism to the urethra during the operative procedure and the subsequent frequent passing of the catheter, (2) the highly concentrated urine which has to pass over this surface. This symptom may be trifling in importance and pass off in two or three days, or after several days the symptom of pain and burning urine may grow more and more severe and be attended with a desire to pass water frequently. Examination of the urine will show acidity, with some mucus and leucocytes, but not a large quantity of mucus, epithelium, and leucocytes. The condition disappears in four to seven days under treatment. *Retention* is not infrequently associated with this condition. This is no doubt often due to lack of innervation or of will power. The patient will feel that she can not urinate while in the recumbent posture, *on account* of the discomfort of the bedpan, *or on account* of the pain itself. *Renal insufficiency* and *suppression* may follow the anæsthesia, and are often grave symptoms pointing to kidney disease. There is, however, uniformly, a very much reduced quantity of urine passed during the first forty-eight or seventy-two hours following operation, owing to the previous purgation and the lesser ingestion of fluids. The character of the urine under these circumstances will determine largely the gravity of the condition. If it be found quite free from albumin and casts, much is to be expected from treatment. If, on the other hand, it is highly albuminous and loaded with granular and epithelial casts, the prognosis is bad, though not absolutely so. There is no doubt that this condition arises not only in those patients operated on who have already a well-recognized kidney disease, but also in those who have a more or less advanced arterial degeneration, whose urine previous to the operation does not show marked changes.

2. *Septic Diseases.*—An infecting agent may invade the urinary

passages and set up inflammation along the whole course, thus giving rise to *urethritis*, *cystitis*, *ureteritis*, *pyelitis*, *pyelonephritis*, and *acute suppurative nephritis*. *Urethritis* in the female is characterized by scalding urine, and, considered apart from the extension of the disease into the bladder, is not of great importance. The symptoms referable to *cystitis* are frequent and painful passage of a small quantity of water (the whole quantity of urine in twenty-four hours is normal in amount if there be no kidney disease) and an almost constant vesical tenesmus. The urine is alkaline in reaction and contains quantities of micro-organisms, pus, bladder epithelium, and mucus. The invasion in the severer cases may be marked by chill followed by fever. I am not aware that *ureteritis*, when not obstructive, gives rise to recognizable symptoms. In *pyelitis* there is more or less pain in the lumbar region, and if there is free drainage of the pus the symptoms are not otherwise marked. If, however, the ureter becomes plugged and the pus dammed back, severe constitutional disturbance ensues. There are irregular chills, fever, delirium, etc. The pelvis of the kidney and the kidney itself become converted into an abscess. Happily, with means now at our hands we are able directly to inspect the bladder and interrogate the ureters separately, and thus accurately to locate the seat of disease. In addition to the above method of infection, the kidneys may be the seat of embolic abscess—*i. e.*, the infecting agent is carried to the kidneys in the blood current. This is a part of a general pyæmic process. The renal involvement is not marked by any special sign different from those of an ordinary nephritis—*i. e.*, presence in the urine of pus, blood epithelium, and casts. The diagnosis rests upon the pathological condition of the urine associated with the chills, fever, and sweating of the general pyæmia.

*Mental aberration* sometimes follows operative procedures on the pelvic organs. I have seen three cases of this kind. Two of them were after plastic operations, and the third after an exploratory section. It is, however, only fair to say that the symptoms were present in the latter case, but not so marked before the operation as after it. The mental disease was of the delusional melancholia type in each instance. In the two plastic cases the operations were simple and the mental trouble developed a week or two later coincident with the symptom of painful urination, and was thought to be a mild type of septicæmia. Both cases recovered in the course of three or four weeks.

The amount of shock following operations in general may be said



to depend on the seat of the operation, the time occupied in doing it, and the amount of blood lost. Thus an operation within the peritoneal cavity causes more shock than one on the external surface of the body, and one lasting an hour more than one lasting half an hour. Practically, in the great majority of gynæcological cases the question of shock does not assume any importance when the anæsthesia does not last more than an hour. Of course this does not include the very debilitated subjects and the ones already suffering from shock due to hæmorrhage. The symptoms of a mild degree of shock are pallor, moist skin, and weak heart. As the shock becomes more profound these symptoms become intensified. The pulse becomes rapid, feeble, thready, irregular. Large drops of perspiration stand out on the skin, which becomes cold and clammy. The body temperature is reduced. The respirations grow more and more shallow until death is imminent.

During the waking up from ether there is usually more or less nausea and vomiting, which is somewhat approximate to the amount of ether taken. Usually the vomiting does not continue over twelve hours. Some patients entirely escape, while, on the other hand, one will rarely meet with a patient who vomits persistently for days every particle that enters the stomach until the question of vomiting assumes more importance than all the other symptoms. I have seen one such case. The patient, a lady in the twenties, was etherized on two occasions with the same result. I can heartily indorse her determination never again to take ether.

Undue hæmorrhage following an operation is indicated by pallor and a weak, rapid pulse coming on after the operation is over. These symptoms always demand prompt inquiry into the source of the loss of blood. It may come from an artery which was insecurely tied or from which the ligature has slipped, or from a vein which only began to bleed after the closing of the wound, or from numerous small vessels which were torn in the separation of adhesions. When the hæmorrhage is from an external part the soiled dressings and visual inspection will clearly show its origin. If the bleeding is in the abdominal cavity, and drainage has not been employed, one must depend on general symptoms for the diagnosis.







